



PATENT
130-125

AF 11743

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re US Patent Application of)
Thomas W. Astle) Art Unit: 1743
Serial No. 09/198,018)
Filed: November 23, 1998) Examiner: P. Bex
Title: ULTRA HIGH THROUGHPUT)
BIOASSAY SCREENING SYSTEM)

Assistant Commissioner for Patents
Washington DC 20231

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TRANSMITTAL OF BRIEF OF APPELLANT

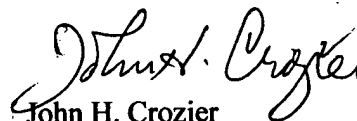
Dear Sir:

Transmitted herewith in triplicate is the Brief of Appellant in the above-referenced application.

Form PTO-2038 authorizing charging of the required appeal fee under 37 CFR 1.17(f) to my VISA account is submitted herewith. Please charge my Deposit Account no. 03-3838 for any additional fees in connection herewith.

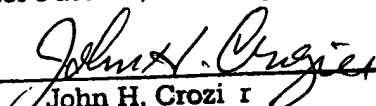
October 15, 2001.

Respectfully submitted,



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I hereby certify that this correspondence is being deposited today with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231.



Date 10/15/01 Regis. No. 30,371

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BRIEF OF APPELLANT

This is an appeal from the final rejection of the Examiner, dated June 13, 2001 (Paper No. 8), rejecting Claims 1-18 and 21-30, erroneously stated as Claims 1-18 and 21-32.

REAL PARTY IN INTEREST [37 CFR 1.192(c)(1)]

The real party in interest is the party named in the caption.

RELATED APPEALS AND INTERFERENCES [37 CFR 1.192(c)(2)]

There are no related appeals or interferences.

STATUS OF CLAIMS [37 CFR 1.92(c)(3)]

The status of the claims set out in Paper No. 8 was and is:

Claims pending: 1-30.

Claims withdrawn from consideration: 19, 20, and 24-29.

Claims allowed: none.

Claims objected to: none.

Claims rejected: 1-18 and 21-30.

SUMMARY OF THE INVENTION [37 CFR 1.192(c)(5)]

Applicant's invention is directed to a carrier tape and its use in ultra high throughput bioassay screening of as many as 100,000 samples per day.

Referring first to Figure 1, there is illustrated a portion of a carrier tape 20 having a plurality of repetitive patterns of wells, as at 30, with a plurality of holes, as at 70, defined between the wells, for the application of vacuum, as is described below with reference to Figure 4. Sprocket holes, as at 32, are provided so that the carrier tape may be moved by a sprocket drive, as is illustrated on Figure 11. Figure 2 illustrates one size of the wells.

Referring to Figure 5, there is illustrated the application of a heat seal layer 62 to the tops of wells 30. Thereafter, a vacuum applied through holes 70, as illustrated on Figure 4, removes any air trapped between the carrier tape and the heat seal layer to assure tight sealing of the wells. Carrier tape 20 then passes through a series of heat-controlled baths, as is illustrated on Figure 8, after which heat seal layer 62 may be removed through the use of a heated roll 170.

Importantly, 100,000 chemical compounds, in 5 microliter aliquots, can be stored in a carrier tape roll 4 inches wide by 16 inches in diameter. See the Specification, page 11, lines 7-10.

Referring to Figures 5 and 6, a pattern of wells 30 may be die cut from carrier tape 20 for the manual removal of the heat seal layer.

ISSUES [37 CFR 1.192(c)(6)]

1. The Examiner has rejected Claims 1 and 3 under 35 USC 112, first paragraph. It is the Examiner's position that those claims contain subject matter not described in the Specification in such manner as to convey to one skilled in the relevant art that the inventor had possession of the claimed invention at the time the application was filed.

2. The Examiner has rejected Claims 1, 15, and 30 under 35 USC 112, second paragraph. It is the Examiner's position that those claims are indefinite.

3. The Examiner has rejected Claims 1-3, 21-23, and 30 under 35 USC 102(b). It is the Examiner's position that those claims are anticipated by Guigan.

4. The Examiner has rejected Claims 4-8 and 16-18 under 35 USC 103(a). It is the Examiner's position that those claims are unpatentable over Guigan in view of Anderson.

5. The Examiner has rejected Claims 9-14 under 35 USC 103(a). It is the Examiner's position that those claims are unpatentable over Guigan in view of Hansen et al.

6. The Examiner has rejected Claim 15 under 35 USC 103(a). It is the Examiner's position that that claim is unpatentable over Guigan in view of Tidemann et al.

GROUPING OF CLAIMS [37 CFR 1.192(c)(7)]

To the extent that arguments are presented below with respect to specific claims, it is Applicant's intention that those claims shall not stand or fall together with the claims with which they are grouped.

ARGUMENT [37 CFR 1.192(c)(8)]

Issue 1 – the rejection of Claims 1 and 3 under 35 USC 112, first paragraph.

With regard to Claim 1, it is respectfully submitted that it is clear that the wells are thermoformed in the carrier tape. The Examiner objects to the fact that no manufacturing method is disclosed in the Specification or the claims. However, in the second paragraph on page 3 of the Office Action, she states that the process of thermoforming is clearly defined and accepted within the art. "The specification need not disclose what is well known in the art. Lindmann Maschinenfabrik GMBH v. American Hoist & Derrick Co., 730 F.2d 1452, 1463, 221 USPQ 481, 489 (CAFC 1984).

With regard to Claim 3, that claim incorrectly states that the roll is 16 inches long. The correct dimension, 16 inches in diameter, is given in the

Specification at page 11, line 10. It is respectfully requested that this appeal be processed as if the correction to that claim had been made.

◦ Issue 2 – the rejection of Claims 1, 15, and 30 under 35 USC 112, second paragraph.

With regard to Claim 1, it is respectfully submitted that there is no confusion and uncertainty as to “thermoformed chemical receiving wells”.

With regard to Claim 15, that claim is a method claim. It is not understood why any vacuum means should be included in the claim. Furthermore, reference to Figure 4 and the accompanying text in the last two full paragraphs on page 12 of the Specification would clearly indicate to one having ordinary skill in the art how the vacuum is applied.

With regard to Claim 30, there is no antecedent basis for “indexing repetitive patterns”, since that is to which the claim is directed. Reference to Figures 1, 11, and 12, for example, clearly would indicate to one having ordinary skill in the art what is meant by “repetitive patterns”.

Issue 3 – the rejection of Claims 1-3, 21-23, and 30 as being anticipated by Guigan.

With regard to Claim 1, element 3 of the reference is not formed by thermoforming. Element 3 is formed by heat sealing. The description of element 18 says nothing about thermoforming. Heat sealing and thermoforming are two entirely different manufacturing operations and are well known to those having ordinary skill in the art.

With regard to Claim 2, Figures 3 and 18 of the reference do not show a liquid-tight seal. In fact, the description of Figure 1 states that openings 4 are left for access to the capsules and it must be assumed that similar openings are provided in other embodiments.

With regard to Claim 3 (as corrected above), it is clear that the tape of Guigan could not be formed into a roll having the stated dimensions.

With regard to Claims 21-23, the above comments with respect to Claims 1-3 are applicable and are incorporated here.

With regard to Claim 30, it is respectfully submitted that the limitations of that claim are not anticipated by the reference when taken with the limitations of Claim 1.

Issue 4 – the rejection of Claims 4-8 and 16-18 under 35 USC 103(a) as being unpatentable over Guigan in view of Anderson. The above comments with respect to Guigan are incorporated here.

The Examiner states that Claim 8 is rendered obvious by the combination of the references, but rejects Claims 4-7 on the basis that the use of certain materials or sizes would have been obvious. Appellant respectfully disagrees. In particular, the Examiner cites the case of *In re Rose*, 105 USPQ 237 (CCPA 1955). That case involved a relatively small change in size of bundled lumber and the CCPA stated that the size of an article under consideration is not ordinarily a matter of invention. (Emphasis added.) In this application, size is one important defining element over the prior art.

The Examiner has applied this ground of rejection to Claims 16-18, but has failed to indicate how the references are applied to those claims.

The Examiner's comment with respect to the sealing material appears to be inapplicable, since none of those claims contain that limitation.

Issue 5 – the rejection of Claims 9-14 under 35 USC 103(a) as being unpatentable over Guigan in view of Hansen et al. The above comments with respect to Guigan are incorporated here.

It is respectfully submitted that these claims contain limitations not rendered obvious when taken with the limitations of the claim(s) from which they depend.

With regard particularly to the limitation of Claim 14, it is not seen that the references render obvious the use of a heated roll to assist in removing the sealing material.

Issue 6 – the rejection of Claim 15 under 35 USC 103(a) as being unpatentable over Guigan in view of Tidemann et al. The above comments with respect to Guigan are incorporated here. The Examiner is correct in stating that Guigan does not teach the step of evacuating the space between the carrier tape and the sealing material, but relies on Tidemann et al. for teaching this feature.

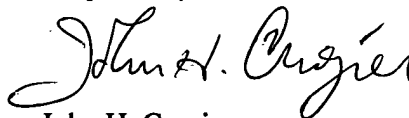
First, step (a) of Claim 15 includes the step of perforating the carrier tape with holes between the chemical receiving well. Tidemann et al. provide an aperture defined in the bottom of wells in a carrier tape, the wells being provided for the storage and delivery of electronic components, and not between the wells.

Second, the aperture of Tidemann et al. is not provided for evacuating the space between a carrier tape and a sealing material as is stated in step (b). As stated in the text of Tidemann et al. cited by the Examiner, the apertures are provided for either: (1) to accommodate a push-up needle to facilitate removal of the electronic components and/or (2) for applying a vacuum to the pocket to permit more efficient loading of the pockets with components.

In view of the above, it is respectfully submitted that the Examiner's rejection is in error and should be reversed.

October 15, 2001.

Respectfully submitted,



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APPENDIX [37 CFR 1.192(c)(9)]

The following sets forth all claims on appeal.

1. A method of chemical compound storage, comprising:
 - (a) providing a longitudinally extending carrier tape having therein a plurality of thermoformed chemical receiving wells; and
 - (b) adding to each of said chemical receiving wells a chemical compound.
2. A method of chemical compound storage, as defined in Claim 1, further comprising: placing a liquid tight sealing material over said chemical receiving wells to retain said chemical compounds therein and to minimize evaporation.
3. A method of chemical compound storage, as defined in Claim 2, further comprising: forming said carrier tape into a compact roll for storage, said roll having about 100,000 aliquots and dimensions of about four inches wide by 16 inches long.
4. A method of chemical compound storage, as defined in Claim 1, further comprising: providing said carrier tape of a thermoformable material having a thickness on the order of from about 15 mils to about 20 mils.
5. A method of chemical compound storage, as defined in Claim 1, further comprising: providing said carrier tape formed of polypropylene to provide solvent resistance.

6. A method of chemical compound storage, as defined in Claim 1, further comprising: providing said carrier tape formed of clear polycarbonate or polystyrene to facilitate optical reading of contents within said chemical receiving wells.
7. A method of chemical compound storage, as defined in Claim 1, further comprising: providing said chemical receiving wells in repetitive matrixes selected from the group consisting of 8x12 wells with a spacing of 9mm between centers, 16x24 wells with a spacing of 4.5mm between centers, and 32x48 wells with a spacing of 2.25mm between centers.
8. A method of chemical compound storage, as defined in Claim 7, further comprising: providing each of said repetitive matrixes with a unique identifier.
9. A method of chemical compound storage, as defined in Claim 2, further comprising: providing said sealing material with a pressure sensitive adhesive to adhere said sealing material to said carrier tape to permit removal of said sealing material after adhesion to said carrier tape.
10. A method of chemical compound storage, as defined in Claim 2, further comprising: providing said sealing material removably heat sealed to said carrier tape to permit removal of said sealing material after being sealed to said carrier tape.

11. A method of chemical compound storage, as defined in Claim 10, further comprising providing said seal material as a two layer material having:

- (a) a lower, seal layer of a low melting point material inert to the contents of said chemical receiving wells; and
- (b) an upper high melting point layer having a higher tensile strength than said seal layer and being joined to said seal layer, to assist in removing said sealing material from said carrier tape.

12. A method of chemical compound storage, as defined in Claim 11, further comprising: providing said lower seal layer formed of a material selected from the group consisting of modified low density polyethylene and ethyl vinyl acetate.

13. A method of chemical compound storage, as defined in Claim 11, further comprising: providing said upper layer formed from polyester.

14. A method of chemical compound storage, as defined in Claim 2, further comprising: removing said sealing material from said carrier tape by using a heated roll to warm said sealing material for removal.

15. A method of chemical compound storage, as defined in Claim 2, further comprising:

- (a) perforating said carrier tape with holes between said chemical receiving wells; and
- (b) evacuating space between said seal material and said carrier tape at time of sealing to assure an intimate leak tight seal is achieved between said seal material and said carrier tape.

16. A method of chemical compound storage, as defined in Claim 2, further comprising: die cutting said sealing material around a pattern of said chemical receiving wells to allow manual removal of said sealing material from said pattern of said chemical receiving wells.
17. A method of chemical compound storage, as defined in Claim 3, further comprising: spinning said roll to force contents of said chemical receiving wells to bottoms of said chemical receiving wells by centrifugal force.
18. A method of chemical compound storage, as defined in Claim 1, further comprising: severing individual patterns of said chemical receiving wells from said carrier tape so that said individual patterns can be used independently.
21. A device for chemical compound storage, comprising: a longitudinally extending carrier tape having therein a plurality of thermoformed chemical receiving wells.
22. A device for chemical compound storage, as defined in Claim 21, further comprising: a liquid tight sealing material disposed over said chemical receiving wells to retain said chemical compounds therein and to minimize evaporation.
23. A device for chemical compound storage, as defined in Claim 22, wherein: said carrier tape is formable into a compact roll for storage, said roll having about 100,000 aliquots and dimensions of about four inches wide by 16 inches long.

30. A method of chemical compound storage, as defined in Claim 1, further comprising: indexing repetitive patterns of said wells using a tractor drive.